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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,182	11/26/2001	Jan Matthijs Jetten	BO 42503	9536

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EXAMINER

MCINTOSH III, TRAVISS C

ART UNIT	PAPER NUMBER
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1623

DATE MAILED: 01/13/2003 //

Please find below and/or attached an Office communication concerning this application or proceeding.

File Copy

Office Action Summary	Application No.	Applicant(s)	
	09/914,182	JETTEN ET AL.	
	Examiner	Art Unit	
	Traviss C McIntosh	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Amendment B filed October 4, 2002 has been received, entered into the record and carefully considered. The following information provided in the amendment affects the instant application in the following manner:

Original claims 19, 20, 22, 24-26, 29-31, 34, and 35 have been amended.

New claims 37-39 have been entered.

Remarks drawn to:

112 First Paragraph rejections: obviated by amendments and applicant's arguments.

112 Second Paragraph rejections: rendered moot by amendments to the claims.

102(a) rejections: obviated by amendments.

103(a) rejections: obviated by applicant's arguments.

An action on the merits of claims 19-39 is contained herein.

The text of those sections of title 35, U. S. Code not included in this section can be found in the prior Office Action mailed June 4, 2002.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

The rejection of claims 19-23, 25-28, and 31-36 as being provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, and 6-11 of copending Application No. 09/913,596 ('596) is maintained for reasons of record. Additionally, claims 24, 29, 30, and 37-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, and 6-11 of copending Application No. 09/913,596 ('596). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application and copending application ('596) are both drawn to a process for oxidizing a primary alcohol function using a nitroxyl compound (TEMPO) in the presence of enzymes, oxidizing agents, and metal complexes. The enzymes in both applications can be any enzyme capable of oxidation. The instant claims include oxidoreductases, and specifically peroxidases using hydrogen peroxide as the oxidizing agent, or a polyphenol oxidase or laccase using oxygen as the oxidizing agent. The claims of '596 limit the enzyme to a peroxidase, a polyphenol oxidase, or a laccase. Further, the claims of the instant application and ('596) are both drawn to an oxidized carbohydrate containing at least 1 cyclic monosaccharide chain group carrying a carbaldehyde group per 100 monosaccharide units per average molecule and additionally containing carboxyl groups. Both the instant and ('596) further claim a carbohydrate derivative in which at least part of the carbaldehyde groups introduced by oxidation have been

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converted to a group with the formula $-\text{CH}=\text{N}-\text{R}$ or $-\text{CH}_2-\text{NHR}$, wherein R is hydrogen, hydroxyl, amino, or a group R^1 , or OR^1 or NHR^1 , in which R^1 is C_1 - C_{20} alkyl, C_1 - C_{20} acyl, a carbohydrate residue, or a group coupled with or capable of coupling with a carbohydrate residue. Additionally, both applications claim a carbohydrate derivative in which at least part of the carbaldehyde group has been converted to a group with the formula $-\text{CH}(\text{OR}^3)-\text{O}-\text{CH}_2-\text{COOR}^2$ or $-\text{CH}(-\text{O}-\text{CH}_2-\text{COOR}^2)_2$, in which R^2 is hydrogen, a metal cation or an optionally substituted ammonium group, and R^3 is H or a direct bond to the oxygen atom of a dehydrogenated hydroxyl group of the carbohydrate.

The examiner notes that the copending application ('596) is directed to cellulose and does not refer to oxidizing primary alcohols in the claims. It is known in the art and dictated in the specification that the primary alcohol function of the cellulose is what is actually being oxidized to the corresponding aldehyde and, if desired, to the carboxylic acid. It is further known that cellulose is a carbohydrate containing primary alcohol functions.

It would be obvious to one of ordinary skill in the art that the oxidation process and compounds claimed in the copending application ('596) and the instant application are substantially overlapping. The process and compounds of the instant invention must contain new and distinguishable measures over the previously filed copending application to be patentably distinct.

Applicant's arguments filed October 4, 2002 have been fully considered but they are not persuasive. Applicant argues that the double patenting rejection from the first Office Action improperly relied upon the specification from each application. However it is noted that support

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for the use of the specification is contained in the following excerpt from MPEP section 804

(emphasis added):

When considering whether the invention defined in a claim of an application is an obvious variation of the invention defined in the claim of a patent, the disclosure of the patent may not be used as prior art. **This does not mean that one is precluded from all use of the patent disclosure.**

The specification can always be used as a dictionary to learn the meaning of a term in the patent claim. In re Boylan, 392 F.2d 1017, 157 USPQ 370 (CCPA 1968). Further, **those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in the application defines an obvious variation of an invention claimed in the patent.** In re Vogel, 422 F.2d 438, 441-42, 164 USPQ 619, 622 (CCPA 1970). The court in Vogel recognized **"that it is most difficult, if not meaningless, to try to say what is or is not an obvious variation of a claim," but that one can judge whether or not the invention claimed in an application is an obvious variation of an embodiment disclosed in the patent which provides support for the patent claim.** According to the court, one must first "determine how much of the patent disclosure pertains to the invention claimed in the patent" because only "[t]his portion of the specification supports the patent claims and may be considered." The court pointed out that "this use of the disclosure is not in contravention of the cases forbidding its use as prior art, nor is it applying the patent as a reference under 35 U.S.C. 103, since only the disclosure of the invention claimed in the patent may be examined."

Thus, the courts have held that it is permissible to use the specification in determining what is included in, and obvious from, the invention defined by the claim on which the rejection is based. This is true even where elements are drawn from the specification describing the claimed invention which are not elements in the claim itself.

Further, applicants have argued that one of ordinary skill in the art would find the copending application '596, which claims specifically cellulose substrates, and the instant application, which is directed to non-cellulose primary alcohol, distinct. The Examiner respectfully disagrees. In both cases, it is the primary alcohol function which is being oxidized, not the compound as a whole. It is obvious to substitute various members of a class of compounds which all contain the primary alcohol function into the process as claimed in both applications. It has been shown that the use of a known member of a class of materials in a process is not patentable if other members of the class were known to be useful for that purpose,

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even if the results are better than expected. *Mills et al. v Watson, Comr. Pats. (CADC 1955) 223 F2d 335, 105 USPQ 355*. Further, once a general reaction has been shown to be old, the burden is on the applicant to present reason or authority for believing that a group on the starting compound would take part in or affect the basic reaction and thus alter the nature of the product or the operability of the process and thus unobviousness of the method of producing it. *In re Neugebauer et al. (CCPA 1964) 330 F2d 353, 141 USPQ 205*. In the instant, the starting compound which is affected by the reaction is the primary alcohol, and the reaction is using an oxidizing agent and a nitroxyl compound in the presence of an enzyme capable of oxidation, to oxidize the primary alcohol function. Further, it is obvious to incorporate specific enzymes which are capable of oxidation, as both claim sets are drawn to any enzyme which is capable of oxidation. Additionally, the compositions as claimed are obvious variations of the compounds which were used as the starting agent, and since the process steps are the same, one of ordinary skill in the art would expect the products to be substantially overlapping.

Therefore, the recitation and limitation of the instant application's claims which are drawn to non-cellulose substrates is not seen to obviate the rejection at hand in the instant.

It would be obvious to one of ordinary skill in the art that the oxidation process and compounds claimed in copending application ('596) and the instant application are substantially overlapping. The process and compounds of the instant invention must contain new and distinguishable measures over the previously filed copending application to be patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims is drawn to an oxidized carbohydrate or a derivative thereof. In the absence of the identity of moieties intended to modify an art recognized chemical core, described structurally or by chemical name, the identity of a derivative would be difficult to ascertain. In the absence of said moieties, the claims containing the term "derivative" are not described particularly sufficiently to distinctly point out that which applicant intends as the invention.

Claim Rejections - 35 USC § 103

Claims 19-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viikari et al. (WO 99/23117).

The claims of the instant application are drawn to the methods of oxidizing non-cellulose primary alcohols using a nitroxyl compound and an oxidizing agent in the presence of an enzyme capable of oxidation and/or in the presence of a metal complex, and to the compounds produced by the reaction as set forth supra and which is incorporated herein as reference.

Viikari et al. disclose a method of oxidizing cellulose comprising reacting cellulose with a TEMPO in the presence of an enzyme and an oxidizing agent specific for the enzyme (abstract). The enzymes are taught to be oxidative enzymes capable of catalyzing oxidation of phenolic groups and are called phenoxidases. Specifically, oxidases (laccases especially) with molecular oxygen and peroxidases with hydrogen peroxide are used (page 3, lines 13-30).

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Viikari et al. teach that part of the primary alcohol group is converted to carbonyl and carboxylic groups (page 4, lines 27-29) and that the method can be employed for oxidizing textile fibers, yarns, and fabrics (page 5, lines 8-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate other carbohydrates into the Viikari et al. reference for use in their process disclosed as it is known that it is the primary alcohol function which is being oxidized, and that carbohydrates other than cellulose comprise primary alcohol functions. As set forth supra, it has been shown that the use of a known member of a class of materials in a process is not patentable if other members of the class were known to be useful for that purpose, even if the results are better than expected. *Mills et al. v Watson, Comr. Pats. (CACD 1955) 223 F2d 335, 105 USPQ 355*. Further, once a general reaction has been shown to be old, the burden is on the applicant to present reason or authority for believing that a group on the starting compound would take part in or affect the basic reaction and thus alter the nature of the product or the operability of the process and thus unobviousness of the method of producing it. *In re Neugebauer et al. (CCPA 1964) 330 F2d 353, 141 USPQ 205*. Additionally, it would be obvious to one of ordinary skill in the art that the products produced by the reactions, as they are preformed in the same manner, would too be substantially overlapping and although Viikari et al. is silent to the limitations as set forth in the instant application, one of ordinary skill in the art would have a reasonable level of expectation that the compounds produced to be the same. One would be motivated to substitute various other carbohydrates, such as steroids, chitin and the like, for the cellulose oxidized in Viikari et al. as the use of enzymes would allow for oxidation

to be carried out at mild reaction conditions and to avoid using reactants which are hazardous and potentially toxic.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

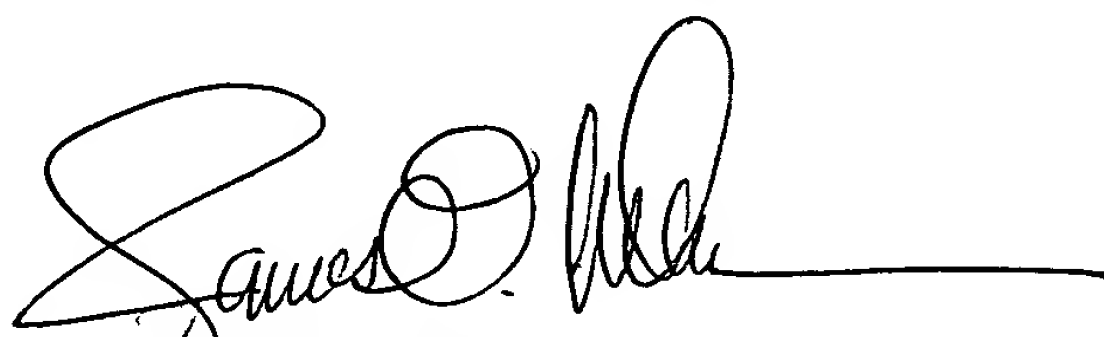
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Traviss C McIntosh whose telephone number is 703-308-9479. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 703-308-4624. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.



James O. Wilson
Supervisory Patent Examiner
Group 1600

Traviss C. McIntosh
January 10, 2003